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Notes on the distribution of some plants observed in traveling through the coastal plain from Georgia to New York in July, 1909

ROLAND M. HARPER

On my way northward through the coastal plain in the latter part of July, 1909, by the route described in the August number of the BULLETIN, and shown in part on the accompanying map, I noted nearly 250 species of plants, as any other traveler familiar with the flora could have done under similar circumstances. On comparing my notes afterward with statements in botanical literature relating to the regions traversed, I found, as often happens, that I had some facts not generally known, and therefore worth mentioning, about the distribution of some of the species. Some of the simpler or less important cases have already been mentioned briefly under the several natural geographical divisions, or vegetation provinces, described in my previous paper, while those of special interest will be treated more fully here.*

In the present paper I wish to call special attention to several species of plants which, although they have been credited to Virginia by many authors, have not been seen in that state recently, if at all. None of these species whose status in the "Manual region" is now questioned were known in Clayton's time (the first half of the eighteenth century), so that his "Flora Virginica," which is believed to be based on a large amount of field work in the coastal plain of Virginia, throws no light on the subject. All but two were known to Michaux, but his "Flora Boreali-Americana" (1803) does not assign to any of them ranges extending farther north than North Carolina. All but one or two began to be credited to Virginia in the first half of the nineteenth century, and have been given a place in most floras covering the northeastern United States, up to and including the latest, that of

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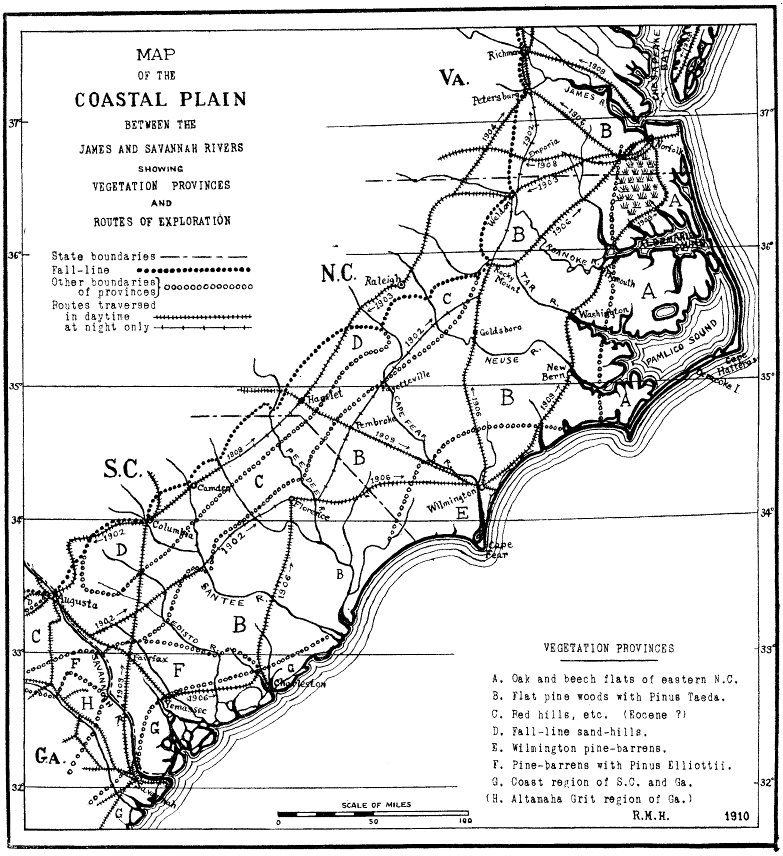
*In discussing the distribution of these plants I shall make frequent references to the notes of my previous trips—particularly that of 1906—through the same general region, as well as to previous literature which I have cited elsewhere.

Robinson and Fernald (the so-called 7th edition of Gray's Manual, 1908). But none of them were found north of the Virginia-North Carolina boundary (latitude 36° 30′) by Chickering, Ward, McCarthy, Hollick, Heller, Pollard, or Kearney,* all of whom have done considerable work in southeastern Virginia in the last quarter of the nineteenth century, and published their observations. The alleged occurrence of such plants in the "Manual region" therefore deserves careful investigation.



Dr. Gray in 1856 (Am. Jour. Sci. 72: 205) published an interesting list of 38 plants which he said would be excluded from his Manual if the southern boundary of his territory, instead of following the parallel of 36° 30′ all the way to the coast, turned northward in the longitude of Washington (77° W.) to the James River, and thence eastward to the coast; which would cut out an area about 50 miles square. This list of Dr. Gray's includes a few of the species now under consideration, but naturally does not give the evidence on which they were admitted to the flora of Virginia.

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*For citations of their papers see the bibliography in Kearney's Dismal Swamp report (Contr. U. S. Nat. Herb. 5: 547–550. 1901), and the footnotes in my account of my 1906 trip.

In the following pages I shall have occasion to refer several times to Mr. Kearney's table of the northern limits of nearly 500 "austroriparian" (*i. e.*, coastal plain) plants, published in his report on Dismal Swamp (Contr. U. S. Nat. Herb. **5**: 450–457) in 1901, and shall not give the full citation each time. Although considerably less was known about the details of plant distribution in the southeastern states at that time than now, this was an excellent piece of work for its time, and it deserves to be extended and brought up to date.

With very few exceptions all species of plants which reach their northern limits in any of the Atlantic states from New Jersey southward (excluding of course the local species of the southern Appalachian region) seem to be confined to the coastal plain in the northernmost state in which they are found.* As a rule such species seem to have their extreme northern outposts within a few miles of the coast, except in Virginia and northeastern North Carolina, where there are more southern plants west of Dismal Swamp than east of it, as I have previously intimated.† The reason for all this is not very plain, but an understanding of it is perhaps not essential for present purposes.

SENECIO TOMENTOSUS Michx.

As in former years,‡ I saw this only within about fifty miles of Dismal Swamp, along railroads and in old fields and pastures. This time I noticed it only in North Carolina, first in Washington County, about 9 miles south of Plymouth, and last in Currituck County.

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*See Shreve, Plant Life of Maryland, 69–72, 76–85, 90, 94. 1910.

†Torreya **9**: 225. 1909; Bull. Torrey Club **37**: 420. 1910.

‡See Bull. Torrey Club **34**: 367, 368. 1907; Torreya **9**: 224. 1909.

MARSHALLIA GRAMINIFOLIA (Walt.) Small.

Seen 15 times in Robeson and Bladen counties, North Carolina, between Allenton and Armour, a distance of about 40 miles. Usually in low pine-barrens, around pocosins, etc. This seems to be just about its northern limit, according to Kearney. In 1906 I saw it in a few places in South Carolina north of the Santee River, and in this southern corner of North Carolina. The only North Carolina specimens cited by Beadle and Boynton in their monograph of the genus* are from "Wilmington."

BALDWINIA UNIFLORA Nutt.

Noted only between Lumberton and Allenton, Robeson County, North Carolina. Perhaps a little later in the season it would have been more conspicuous, and recognized oftener. Nuttall in the original description gave its range as "Virginia to Florida," and most subsequent works that mention it have accepted this statement, except Chapman, who gave its northern limit as North Carolina, Gray† and Small, who exclude it even from North Carolina, and Kearney, who places its northern limit at lat. 34°, which is south of Wilmington. Croom did not find it in the vicinity of New Bern, and Wood and McCarthy in their flora of Wilmington and vicinity credit it only to Brunswick County.

PLUCHEA IMBRICATA (Kearney) Nash.

Seen three times in Effingham County, Georgia, and once about a mile north of Fairfax, South Carolina, which is probably its northern limit. It was not previously known northeast of Tattnall County, Georgia.‡

TRILISA ODORATISSIMA (Walt.) Cass.

Common nearly all the way from Wilmington to Verona, North Carolina, but not seen elsewhere northeast of Georgia. (In 1906 I did not recognize it in the Carolinas at all; but it is not as easily recognized in July as it is several weeks later.) This was credited to Virginia by Nuttall, and nearly all descriptive floras covering that part of the country since his time have followed him. But

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*Biltmore Bot. Stud. **1**: 4. 1901.

†Syn. Fl. N. A. 1^2: 302. 1884. This species is mentioned, however, in all editions of Gray's Manual except the first.

‡See Ann. N. Y. Acad. Sci. **17**: 142. 1906, for details of range and habitat.

Croom in his flora of New Bern and vicinity, published in 1837, stated distinctly that he had not seen it farther north than the counties of Carteret and Onslow. (It was in Onslow County that I last saw it.) And Kearney places its northern limit still farther south.

SABBATIA DECANDRA (Walt.) Harper.

In pine-barren ponds between Garnett and Scotia, Luray and Gifford, in Hampton County, South Carolina. Walter's original specimens presumably came from South Carolina, but no 19th century botanist seems to have seen it northeast of the Canoochee River.* Nearly all the existing herbarium specimens are from Florida.

POLYCODIUM CAESIUM Greene, Pittonia **3**: 325. 1898.

On the fall-line sand-hills of Orangeburg, Lexington, and Richland counties, South Carolina.

OXYDENDRON ARBOREUM (L.) DC.

On this trip seen first near Verona, North Carolina (very common between there and New Bern), and last about three miles east of Williamsburg, Virginia. Three years before, I saw it only between Tarboro, N. C., and Windsor, Va., a still smaller range.

DAUCUS CAROTA L.

Noticed first at Elizabeth City, North Carolina, and then nearly everywhere north of there. The "carrot weed" reported from Wayne, Greene, Craven, Martin, and Chowan counties in Kerr's report on the cotton production of North Carolina (Tenth Census, vol. 6, 1884) may be the same thing. In Georgia it is common enough in some parts of the Piedmont region, but I do not remember seeing it in the coastal plain. Some interesting notes on the distribution of this European weed in the eastern United States were published several years ago by L. H. Dewey.†

OXYPOLIS FILIFORMIS (Walt.) Britton.

Common in shallow ponds in Hampton County, South Carolina, and in moist pine-barrens in the eastern part of Bladen County, North Carolina. This species has long been credited to Virginia, apparently on no other evidence than a very poor speci-

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*See Ann. N. Y. Acad. Sci. **17**: 177. 1906.

†Yearbook U. S. Dept. Agric. **1896**: 280, 282. 1897.

men from Harper's Ferry (which is not only among the mountains, but about 300 miles farther north than any living botanist has seen this characteristic pine-barren plant); but I have recently shown* that the mountain plant belongs to a different genus.

Croom did not find *O. filiformis* in the vicinity of New Bern, Kearney does not mention it at all in his Dismal Swamp report, and all the specimens cited in Coulter & Rose's latest monograph† are from Florida and Mississippi. In 1906 I did not see it north of Williamsburg County, South Carolina.

NYSSA UNIFLORA Wang.

Last seen in Virginia, in swamps of the Chickahominy River about 18 miles east of Richmond, between the stations of Providence Forge and Elko, with *Taxodium distichum* as usual. I have found no record of any other station for it north of the James River.

RHEXIA ALIFANUS Walt. (See Bull. Torrey Club **33**: 238. 1906.)

Common in moist pine-barrens; last seen in Washington County, North Carolina, about 13 miles south of Plymouth. Kearney puts its northern limit at lat. 35°, about 50 miles farther south.

GORDONIA LASIANTHUS L.

First seen (after leaving Georgia) about ten miles W.N.W. of Wilmington, and last about five miles S.S.E. of Washington, in Beaufort County, North Carolina. Three years before, I identified it with certainty only in Duplin County, in the same state.‡ This handsome tree seems to have been credited to Virginia first by Pursh and later by nearly every subsequent monographer, but this is probably a mistake. Kearney places its northern limit at latitude 34°, and it does not seem to be mentioned in any of the other papers on the Dismal Swamp region cited in his report.

CYRILLA RACEMIFLORA L.

Seen only in North Carolina (as in 1906), first near Hamlet, and last about 9 miles south of Plymouth. My 1906 notes placed it within still smaller limits.§

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*Torreya **10**: 237–239. N 1910.

†Contr. U. S. Nat. Herb. **7**: 193. 1900.

‡See Bull. Torrey Club **34**: 369. 1907.

§See Bull. Torrey Club **34**: 370. 1907.

EUPHORBIA ERIOGONOIDES Small.

In 1906 I found this in sand along a railroad near Florence, South Carolina,* and three years later, almost to the hour, I found it in similar situations about 50 miles due north, near Hamlet, North Carolina, which is another state for it.

STILLINGIA AQUATICA Chapm.

In a pine-barren pond just north of Luray, Hampton County, South Carolina. Although this was credited to South Carolina (exact locality not specified) by its author, I have never seen it mentioned in local floras of that state (there have been very few published, though, since this species was described, half a century ago), or even seen a specimen from there. This is therefore probably the first definite record for it in South Carolina, as well as its northernmost known station. As in the case of *Pluchea imbricata* and *Sabbatia decandra*, I had not previously seen it northeast of Tattnall County, Georgia.

POLYGALA CYMOSA Walt.

Common in ponds in Hampton County, South Carolina, and seen twice in Bladen County, North Carolina, somewhat like *Oxypolis filiformis* (see above). I did not see it north of Wilmington in previous years, and Kearney did not find it in the Dismal Swamp region. There must be a considerable gap in its range between North Carolina and Delaware, somewhat like that between the *Oxypolis filiformis* and its variety *Canbyi.*

POLYGALA LUTEA L.

As in 1906, I found no trace of this in South Carolina. I noticed it first near Hamlet, and commonest between Wilmington and Verona, and New Bern and Mackey's Ferry.

AMORPHA HERBACEA Walt.

Both in 1906 and 1909 I saw this only in dry pine-barrens in the Cape Fear region. It grows in Georgia, but is probably rare in South Carolina.

CYTISUS SCOPARIUS (L.) Link.

I saw this several times on the railroad right-of-way on the Yorktown peninsula of Virginia, but as I did not then realize what it was (never having seen it before), I could not very well

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*See Bull. Torrey Club **34**: 370. 1907.

note the exact localities. Mr. E. W. Berry tells me that he has found it abundant around Yorktown, where there is a tradition that it was introduced at the time of the Revolution by Cornwallis's soldiers. Dr. M. A. Chrysler* reports it as abundant near Annapolis, Maryland.

The last two editions of Gray's Manual credit this species to Virginia "and southward"; but it is not mentioned in Small's Flora of the Southeastern U. S., or even in Kearney's Dismal Swamp report.

SARRACENIA FLAVA L.

Seen about 75 times between Hamlet and Plymouth, North Carolina, and nowhere else on this trip (somewhat like *Cyrilla* and *Polygala lutea*). Kearney found it only near New Bern (and placed its northern limit at latitude 35°); and it must be very rare north of the Roanoke River, like *Cyrilla* and several other species which have been seen only a few times in Virginia.

NYMPHAEA SAGITTIFOLIA Walt.

Common in four coffee-colored (not muddy) creeks or small rivers within twenty miles of each other, between Laurinburg and Lumberton, North Carolina. (I had seen it at the first three of these places while walking from Pembroke to Laurinburg in November, 1905.)† On Sept. 22, 1794, Michaux found what is probably the same species near Fayetteville,‡ as C. L. Boynton did over 100 years later.§ Elliott knew it only from the Peedee River, which may perhaps be the type-locality. Wood & McCarthy found it near Wilmington. In 1906 I saw it only in ditches in the northern corner of Horry County, South Carolina. All these localities are within 100 miles of each other.

I have seen what passes for the same thing in several creeks and rivers at sea-level in Santa Rosa County, Florida, but never in Georgia or Alabama. If the material from Indiana and Illinois which has been referred to this species is correctly identified it has a very peculiar distribution.

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*Plant Life of Maryland, 191, 445. 1910.

†See Torreya 6: 43. 1906.

‡Journal of André Michaux, edited by C. S. Sargent.

§See Biltmore Bot. Stud. 1: 148. 1902.

NYMPHAEA ADVENA Ait.

First seen in Swift Creek in the northern part of Craven County, North Carolina, which is perhaps as far south as it extends in the coastal plain. In 1906 I saw it only in ditches in the southeastern end of Halifax County, in the same state.

NELUMBO LUTEA (Willd.) Pers.

Grows in Aquia Creek and other estuaries of the Potomac River in Stafford and Prince William counties, Virginia. This is just about where Professor Ward saw it in 1885.*

PHORADENDRON FLAVESCENS (Pursh) Nutt.

Last seen near Northwest, Norfolk County, Virginia, on *Acer rubrum.* (Farther south it is oftener on *Nyssa biflora.*) In 1906 I saw it a little farther north, on the Blackwater River near Zuni.

ERIOGONUM TOMENTOSUM Michx.

Common on the fall-line sand-hills of South Carolina. Last seen in Kershaw County about 8 miles northeast of Camden.

PLANERA AQUATICA (Walt.) Gmel.

Seen this time only in the Savannah River bottoms, in Hampton County, South Carolina.

QUERCUS PALUSTRIS DuRoi.

First noticed in Caroline County, Virginia, a little south of Milford. This is the farthest south I have ever seen it.

QUERCUS PRINUS L.

Seen three times in the pine-barrens between Tom's River and Ocean Gate, New Jersey, where it had doubtless been observed by many other botanists before. I mention this here because very few other coastal plain stations for it are known. Long Island is in a certain sense nearly all coastal plain, but on that interesting island I have seen this oak only in the hilly northern or glaciated portions.† Dr. Shreve in his recent Plant Life of Maryland has reported it from a few counties in the upper part of the coastal plain of that state, and Mr. E. W. Berry tells me that he is sure he has seen it in the coastal plain of Virginia, but does not remember the exact locality. Pinchot & Ashe excluded it from the coastal plain in North Carolina, and Elliott likewise in South Carolina. In Georgia I have not seen it within twenty miles of the fall-line,* and Dr. Mohr could have said the same thing about its occurrence in his state, judging from the map which forms the frontispiece of his well-known Plant Life of Alabama. But in the fall of 1908 I found it in ravines near Havana, Hale County, Alabama (in the Cretaceous region of the coastal plain), and Dr. Hilgard found it over half a century ago on high rocky ridges in Tippah County, Mississippi,† which is likewise in the Cretaceous region.

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*Bot. Gaz. 11: 35. 1886.

†See Torreya **8**: 156. 1908. Mr. E. P. Bicknell has since informed me that he knows of a station for it near Woodmere, in the flat part of the island.

MYRICA CERIFERA L.

Last seen near Providence Forge, New Kent County, Virginia, about 25 miles east of Richmond. In 1906 I last saw it about 45 miles, and in 1908 about 10 miles,‡ from the fall-line, in the same state.

MYRICA PUMILA (Michx.) Small.

Common in dry pine-barrens between Wilmington and Verona, North Carolina, and seen once in Washington County, about 12 miles south of Plymouth.

NOLINA GEORGIANA Michx.

Occasional on the fall-line sand-hills of South Carolina; seen once in the upper edge of Orangeburg County and twice in Kershaw County. Elliott knew it only from "the driest sand hills, between Orangeburgh and Columbia."

LILIUM CATESBAEI Walt.

Last seen near a pocosin between Kellum and Deppe, Onslow County, North Carolina (and in 1906 just about the same distance north of Wilmington, both stations being in the *Pinus Taeda* region). Kearney places its northern limit about one degree farther south.

ZYGADENUS GLABERRIMUS Michx.

Last seen in Beaufort County, North Carolina, five or six miles south of Washington. In 1906 I did not see it north of Burgaw, Pender County, but Kearney places its northern limit still farther north (36°), and Pursh and several subsequent authors have assigned it a place in the flora of the northern United States.

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*See Southern Woodlands 2: 96, 97. 1908.

†Geology and Agriculture of Mississippi, 266. 1860.

‡See Torreya 9: 225. 1909.

ORONTIUM AQUATICUM L.

Seen just east of Hamlet and Laurinburg, North Carolina, and Tom's River, New Jersey. At the first- and last-named localities it was accompanied by *Chamaecyparis*.

RYNCHOSPORA INEXPANSA (Michx.) Vahl.

Common along the railroad between New Bern and Norfolk, often with *Senecio tomentosus* and equally weed-like. In 1906 I saw it in similar places in Gates County, North Carolina, and in 1908 at various places between Norfolk and Emporia, Virginia. This species has perhaps never been openly charged with "weediness" before, though I have known for years that it is usually a weed in Georgia. More information about its natural habitats (if it has any) would be welcome.

RYNCHOSPORA ALBA (L.) Vahl (or its var. *macra* Clarke?).

Very few stations for this in the South are known, so it may be worth mentioning that I found it in a sand-hill bog near Hamlet, N. C.

DICHROMENA LATIFOLIA Baldw.

Last seen at about the same place as *Lilium Catesbaei* (see above), which corresponds pretty closely with the northern limit assigned to it by Kearney. It was doubtfully reported from Virginia in the fifth edition of Gray's Manual, 1867, and has been generally regarded as a member of the northern flora ever since. More evidence on this point is desirable.

CAMPULOSUS AROMATICUS (Walt.) Trin.

Noted twice in Chatham County, Georgia, once near Hamlet, and once between Elkton and Rosindale, North Carolina. I saw it oftener in 1906, from about Chadbourn to Burgaw, in the last-named state, but not in South Carolina on either trip. It has been credited to Virginia by Pursh and many of his successors, but Kearney found it only near New Bern.

ARISTIDA STRICTA Michx.

After leaving Georgia I saw this very characteristic grass of dry pine-barrens (from which the "wire-grass country" of Georgia, Alabama, etc., takes its name) only between Hamlet and Plymouth, North Carolina, like *Sarracenia flava* and several other plants. In 1906, too, I saw it only in the same state between Lake Waccamaw and the Neuse River.

Pursh reported this species from "shady rocky situations, on river sides: Virginia, Carolina, etc.," and on the strength of this reference it has found a place in most northern manuals, until Prof. A. S. Hitchcock, in elaborating the grasses for Robinson & Fernald's Manual, 1908, excluded it. Mr. Kearney found it only near New Bern, like the preceding.

It is possible however that this species has been misinterpreted, and that our familiar wire-grass is not Michaux's *Aristida stricta* at all. There are some serious discrepancies between the original description and the plant that now goes by that name, and the habitat assigned to it by Pursh is decidedly not that of the wire-grass. This is a matter that deserves investigation.

CHAMAECYPARIS THYOIDES (L.) BSP.

In 1906 I did not see this at all between Alabama and New York,* but last year I was more fortunate, having noted it once among the fall-line sand-hills of Kershaw County, South Carolina, (about 10 miles northeast of Camden), twice within five miles of Hamlet,† once in Beaufort County south of Washington, North Carolina, and several times in the pine-barrens of New Jersey.

TAXODIUM IMBRICARIUM (Nutt.) Harper (*T. adscendens* Brong.).

Last seen about nine miles south of Plymouth, N. C., like several other species already mentioned. The only place where I saw this in the fall-line sand-hill region was in the same bog with the *Chamaecyparis* just mentioned, which happens to be within a few miles of where Croom once found it.‡

TAXODIUM DISTICHUM (L.) Richard.

Last seen at the same place as *Nyssa uniflora*, along the Chickahominy River in Virginia. Its inland limit in the Middle Atlantic states seems to be very similar to that of *Myrica cerifera*.

PINUS VIRGINIANA Mill.

First seen in Warwick County, Virginia, about 6½ miles north-

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*See Bull. Torrey Club **34**: 377. 1907.

†See Torreya **6**: 43. 1906.

‡See Am. Jour. Sci. **28**: 166. 1835.

west of Newport News. Frequent the rest of the way through Virginia and Maryland, and in the Cretaceous region of New Jersey.

PINUS GLABRA Walt.

Observed only in the Savannah River bottoms near Garnett, South Carolina; the first time I had seen it northeast of Georgia. Very few South Carolina stations for it are known to botanists now living. It is interesting to note that Michaux saw what is probably this species in the vicinity of Parker's Ferry on the Edisto on April 21, 1787, though it is not mentioned in his Flora Boreali-Americana.

PINUS SEROTINA Michx.

Common enough nearly everywhere south of Dismal Swamp, but seen only once in Virginia this time, that about two miles south of Fentress, Norfolk County.

PINUS TAEDA L.

Common in all the regions passed through, to a point in Caroline County, Virginia, about 69 miles south of Washington, D. C. (Prof. Ward, in traveling southward over approximately the same route 24 years earlier, first saw it a little farther north, and published some interesting notes on it the following year.*) It has been reported from the District of Columbia and even from West Virginia,† but it does not seem possible that it could be indigenous in those places, especially the last, for if it was, its inland limit would trend northwestward,‡ instead of northeastward like many other species in this latitude.

PINUS ELLIOTTII Engelm.

Last seen about three miles north of Sycamore, Barnwell County, South Carolina. There can be little doubt that this is its northern limit, or essentially so, for there is no tree whose range, in proportion to the area covered by it, is easier to map.§

COLLEGE POINT, NEW YORK.

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*Bot. Gaz. 11: 33, 34. 1886.

†See Millspaugh, W. Va. Exp. Sta. Bull. 24 (Fl. W. Va.) 475. 1892; Sudworth, U. S. Dept. Agr. Div. Forestry Bull. 17: 17. 1898.

‡See the map of its range in Mohr's "Timber pines of the Southern United States."

§I have seen it in nearly every county in which it grows, from South Carolina to Florida and Mississippi.